GEOMETRIC MEAN CALCULATION
FOR DISCHARGE MONITORING REPORTS

It is necessary to calculate a geometric mean when reporting the 30-day average for *fecal coliform* or *total coliform* on a Discharge Monitoring Report (DMR). Remember, a 30-day average for these parameters is only reported when 5 samples or more were collected during the reporting period. The following is an example problem to calculate the geometric mean.

In the first column below, the dates of the samples are listed followed by the sample results in column two. In the third column is the key you need to push on a scientific calculator. The final column shows the results you should get.

DATE	FECAL COLIFORM, number/100 mL	CALCULATOR KEYSTROKE	RESULT
5/13/02	2000	LOG	3.301
5/14/02	1500	LOG	3.176
5/15/02	1000	LOG	3.000
5/21/02	200	LOG	2.301
5/28/02	100	LOG	2.000
AVERAGE			2.7556

Once you have the results for each sample, as shown in column four, average the results. In this example, you would add 3.301, 3.176, 3.000, 2.301, and 2.000 for a total of 13.778. Then divide 13.778 by the number of samples that you have, in this case five (5). This gives you an average of 2.7556 (do not clear this number). Next push the **INV** key and then the **LOG** key. (With some calculators, you push a **10^x** key.) For the example above, the solution would be about **569.6394**.

Therefore, 569.6394 (or round to 570) is your geometric mean, which would be reported as the 30-day average for fecal coliform on the DMR. If you have any questions, contact the South Dakota Department of Environment and Natural Resources at 605/773-3351.

The calculator on your computer can be used to determine a geometric mean. If you have Windows 2000 or XP, press the START button in the lower left corner of your screen. In the popup screen click PROGRAMS then ACCESSORIES and then CALCULATOR. The calculator will appear on your screen. You want to use the scientific calculator like the one pictured below. If the smaller standard calculator appears, you need to click VIEW on the tool bar and then click SCIENTIFIC. Then you can apply the instructions on the previous page.
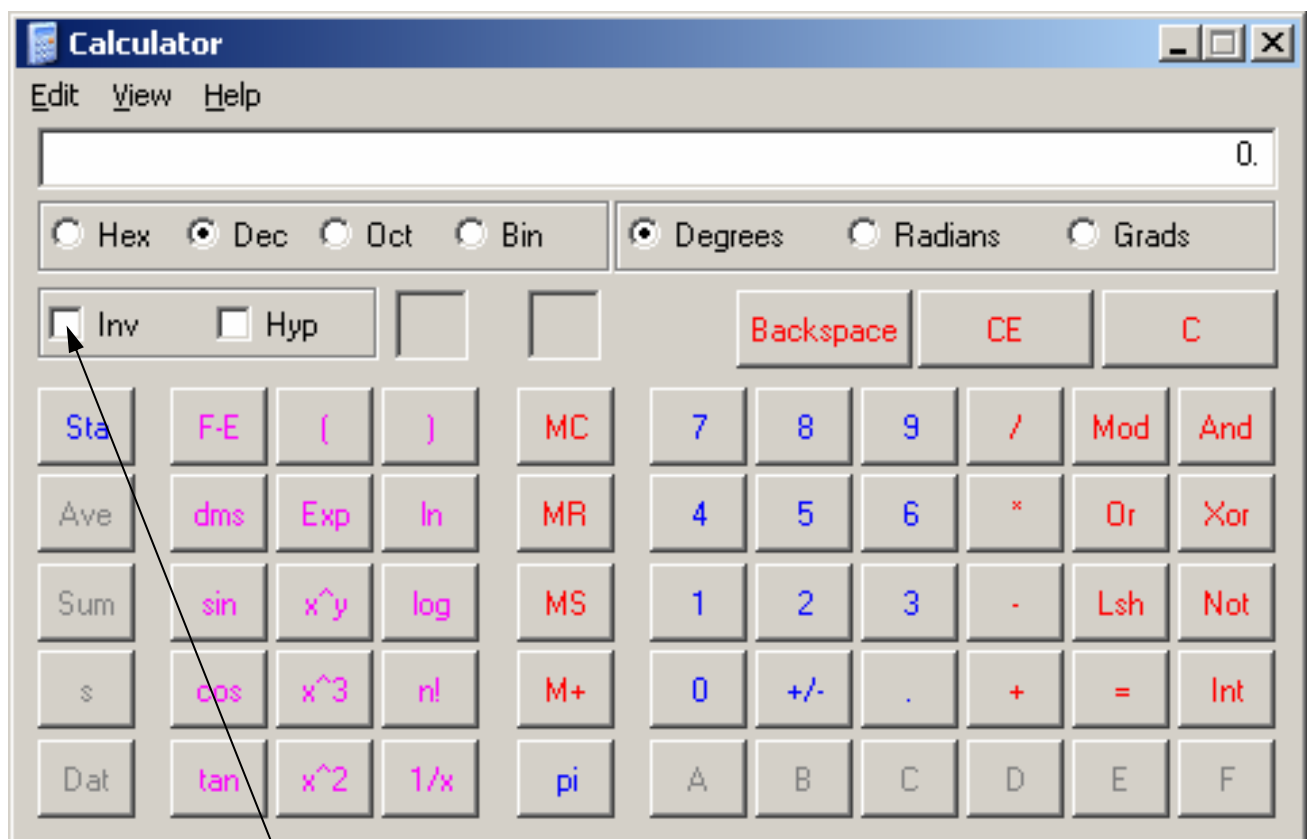
Click on this box to activate the INV